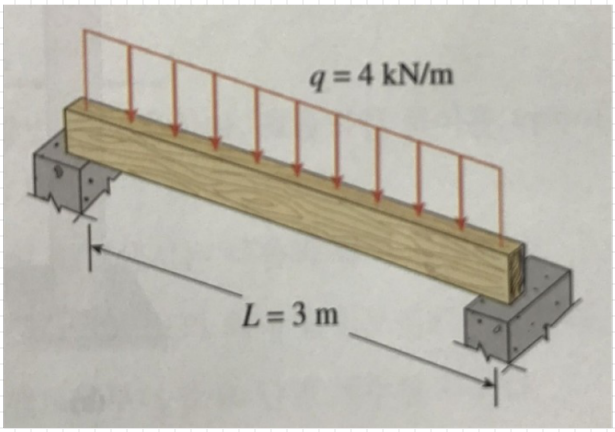
TITLE : 재료역학2 DATE : 2022.11.20 2021741062 강현준



$M_{max} = \frac{1}{8} wL^2 = \frac{1}{8} \cdot 4 \cdot 3^2 = 4.5\,kN \cdot m$

$S = \frac{M_{max}}{\sigma_{max}} = \frac{4.5\,kN \cdot 1000mm}{12\,MPa} = \frac{4500 \cdot 1000}{12} = 375000$

" $12N/mm^2$.

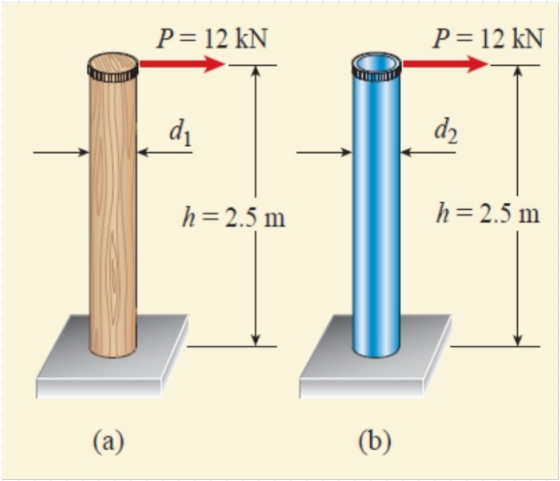
$S = \frac{1}{6} bh^2$

수직으로 하중을 받고 있기 때문에 Axis 2-2 를 참고.

0.3가 보단 0.3배 가더 가벼기 때문에 $b = 100mm$

$h = 250mm$

사이즈가 적합하다.



a)

$M_{max} = Ph = 30\,kN \cdot m$

$S = \frac{\pi d_1^3}{32} = \frac{M_{max}}{\sigma_{max}} = \frac{30\,kN \cdot m}{15\,MPa}$ $d_1 = 293mm$ "

b)

$I = \frac{\pi}{64}\left[d_2^4 - (0.75 d_2)^4 \right] = 0.03356\, d_2^4$

$S_2 = \frac{I}{c} = \frac{0.03356\, d_2^4}{\frac{d_2}{2}} = 0.06712\, d_2^3$ "

$= \frac{M}{\sigma} = \frac{30}{50} = 600 \times 10^3\, mm^3$.

$d_2 = 208mm$ "

Only ⓤ life